

**REMARKS**

In the Final Office Action, the Examiner rejected claims 1-31, 41, and 42. This response neither amends nor cancels any claims. As such, claims 1-31, 41, and 42 remain pending. Applicants respectfully request reconsideration of the pending claims in view of the following remarks.

**Rejections Under 35 U.S.C. § 102**

In the Final Office Action, the Examiner rejected claims 1, 3, and 7 under 35 U.S.C. § 102(b) as anticipated by Andrews et al., U.S. Patent No. 1,560,589 (hereinafter "Andrews"). In addition, the Examiner rejected claims 1, 3, 5-9, 13, 18-20, and 24 under 35 U.S.C. § 102(b) as anticipated by Henrie, U.S. Patent No. 4,170,455 (hereinafter "Henrie").

Applicants respectfully traverse this rejection. Anticipation under Section 102 can be found only if a single reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 U.S.P.Q. 773 (Fed. Cir. 1985). For a prior art reference to anticipate under Section 102, every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). To maintain a proper rejection under Section 102, a single reference must teach each and every limitation of the rejected claim. *Aillas Powder v. E.I. du Pont*, 750 F.2d 1569 (Fed. Cir. 1984). The prior art reference also must show the *identical* invention "*in as complete detail as contained in the ... claim*" to support a *prima facie* case of anticipation. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 U.S.P.Q. 2d 1913, 1920 (Fed. Cir. 1989) (emphasis added). Accordingly, the Applicants need only point to a single element not found in the cited reference to demonstrate that the cited reference fails to anticipate the claimed subject matter.

***Omited Features of Independent Claim 1***

Andrews fails to anticipate all elements of independent claim 1. Independent claim 1 recites, *inter alia*, “[a] *particle reduction apparatus*” and “a radiation source...to direct the radiation into the radiation absorption zone to promote *reduction of the particulate matter* from the gaseous flow.” (Emphasis added.) The Examiner has argued that “particle reduction” is functional language that adds little patentability weight to the claimed structure. *See* Office Action, page 2. Applicant respectfully disagrees with the Examiner’s assertion.

The apparatus recited in independent claims 1 is a *particle reduction apparatus*, specifically it is an apparatus that promotes *reduction of the particulate matter* from the gaseous flow. The Examiner has stated that promoting reduction of the particulate matter from the gaseous flow adds little patentability weight to the claimed structure, however, Applicants would like to point out that since the claimed structure is a *particle reduction apparatus*, any art used to anticipate independent claim 1 must promote the *reduction of particulate matter* since it is affirmatively recited as defining a characteristic of the claimed structure of the recited *particle reduction apparatus*.

Andrews is directed to drying material via steam coils. *See* Andrews, col. 4, lines 75-84. To accomplish this goal, Andrews describes a delivery nozzle that directs air current over the material. *Id.*, col. 3, lines 54-56. The system of Andrews uses heat from the steam coils to heat the air over the material, causing liquid to evaporate into the air current without allowing the evaporated particles to condense on the material. *Id.*, col. 4, lines 95-103. Thus, the system of Andrews allows liquid particles to evaporate from the material and into the gaseous flow, thereby *increasing* the particulate matter in the gaseous flow. Since the recitation of claim 1 requires *reduction* of the particulate matter from the gaseous flow, Andrews fails to anticipate all elements of independent claim 1, as well as all claims depending therefrom.

Moreover, there is no showing that the steam coils of Andrews provide the necessary radiation to elicit particle reduction. In this manner, the radiation source of Andrews (steam coils 7) do not anticipate the recited radiation source of the particle reduction apparatus of claim 1 because the steam coils fail to function in an analogous manner to the radiation source of independent claim 1.

Likewise, Henrie fails to anticipate all elements of independent claim 1. Independent claim 1 recites, *inter alia*, “a *transparent shield* surrounding at least a portion of the radiation absorption zone...the radiation source separated from the flow of the particulate matter *by the transparent shield.*” (Emphasis added.) The Examiner suggested that Henrie, in FIG. 2, teaches a radiation source (not pictured) separated from gas by a pipe wall (40). *See* Office Action, page 3. The Examiner is respectfully reminded that independent claim 1 recites the radiation source separated from the flow of the particulate matter *by the transparent shield.* As such, it appears that the Examiner has interpreted the inlet conduit member 40 (pipe wall) as the transparent shield of independent claim 1.

However, independent claim 1 requires the transparent shield to surround at least a portion of the *radiation absorption zone*. The radiation absorption zone of Henrie is *not* in the inlet conduit member 40, but rather in the gas pathway 48. *See* Henrie, FIG. 2; col. 7, lines 25-54. Accordingly, even if the inlet conduit member of Henrie is read as the transparent shield, Henrie fails anticipate the transparent shield surrounding at least a portion of the *radiation absorption zone*. Conversely, if metal heat shields 52, or any other portion of the apparatus of Henrie, are read as the recited transparent shield, then the transparent shield of Henrie fails to anticipate the radiation source separated from the flow of the particulate matter *by the transparent shield.* As such, Henrie fails to anticipate all elements of independent claim 1, as well as all claims depending therefrom.

Therefore, for at least these reasons, neither Andrews nor Henrie anticipate all elements of independent claim 1. As such, neither Andrews nor Henrie anticipate

independent claim 1 under Section 102. Accordingly, Applicants respectfully request withdrawal of the rejections and allowance of independent claim 1, as well as all claims depending thereon.

**Claim Rejections under 35 U.S.C. § 103(a)**

In the Office Action, the Examiner rejected claims 1, 3-30, 41, and 42 under 35 U.S.C. § 103(a) as unpatentable over Henrie in view of Wagner et al., U.S. Patent No. 5,101,095 (hereinafter “Wagner”).

Applicants respectfully traverse this rejection. The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (B.P.A.I. 1979). To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 180 U.S.P.Q. 580 (C.C.P.A. 1974). However, it is not enough to show that all the elements exist in the prior art since a claimed invention composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. *KSR International Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007). It is important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. *Id.* Specifically, there must be some articulated reasoning with a rational underpinning to support a conclusion of obviousness; a conclusory statement will not suffice. *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). Indeed, the factual inquiry determining whether to combine references must be thorough and searching, and it must be based on *objective evidence of record*. *In re Lee*, 61 U.S.P.Q.2d 1430, 1436 (Fed. Cir. 2002).

***Omited Features of independent claims 1 and 16***

Independent claims 1 and 16 recite, *inter alia*, “a *transparent shield* surrounding at least a portion of the radiation absorption zone...the radiation source separated from the flow of the particulate matter *by the transparent shield*.” (Emphasis added.) As described above, there is no element in the apparatus described by Henrie that incorporates all recitations of the transparent shield. Similarly, the only potential radiation source identified by Wagner is heating device 38, which is shown to be in direct contact with the gaseous flow. *See* Wagner, FIGS. 1 and 2. Thus, the teachings of both Henrie and Wagner fail suggest a *transparent shield* surrounding at least a portion of the radiation absorption zone and the radiation source separated from the flow of the particulate matter *by the transparent shield*, as recited by independent claims 1 and 16. Accordingly, Applicants respectfully request that the Examiner withdrawal of the rejection of independent claims 1 and 16, and further request that the Examiner allow independent claims 1 and 16, as well as all claims depending therefrom.

***Omited Features of independent claims 41 and 42***

Independent claims 41 and 42 recite, *inter alia*, “means for providing radiation *into the radiation absorption zone*.” The Examiner read Henrie as describing a radiation means that provides radiation to gas in an inlet conduit member 40 (inlet pipe). *See* Office Action, page 5. However, the absorption zone as described by Henrie includes the gas path 48, not the inlet conduit member 40. *See* Henrie, FIG. 2; col. 7, lines 25-33, and col. 8, lines 5-8. Accordingly, Henrie fails to teach or suggest a means for providing radiation *into the radiation absorption zone*. Wagner fails to overcome this deficiency of Henrie.

Wagner describes a radiation source 38, which is shown to be in direct contact with the gaseous flow outside of the filtration zone 24 used to reduce particulate matter. *See* Wagner, FIGS. 1 and 2; col. 2, lines 57-68. Accordingly, since Wagner also fails to teach a means for providing radiation *into the radiation absorption zone*, Henrie and

Wagner cannot be combined to teach or suggest a means for providing radiation *into the radiation absorption zone*.

Moreover, since the system of Wagner illustrates a radiation source 38 shown to be in direct contact with the gaseous flow, it appears to be combinable only with the first embodiment of Henrie (FIG. 1), and not the second embodiment of Henrie (FIG. 2). As such, the combination of Henrie and Wagner would also fail to teach means for separating the means for providing radiation *from the gaseous flow* carrying the particulate matter.

Accordingly, because Henrie and Wagner, even in hypothetical combination, fail to teach all elements of independent claims 41 and 42, Applicants respectfully request withdrawal of the rejection of independent claims 41 and 42 under 35 U.S.C. § 103(a) and further request allowance of independent claims 41 and 42.

### **Conclusion**

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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